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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,106	01/21/2004	Knud Reuter	CH-7961/LcA 35,552	3885
23416 7590 12/12/2007 CONNOLLY BOVE LODGE & HUTZ, LLP P O BOX 2207 WILMINGTON, DE 19899			EXAMINER WU, SHEAN CHIU	
			ART UNIT 1795	PAPER NUMBER
			MAIL DATE 12/12/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/762,106

Applicant(s)

REUTER ET AL.

Examiner

Shean C. Wu

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 22-29, 31-37 and 39-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27 is/are allowed.
- 6) ☒ Claim(s) 22-26, 28-29, 31-37 and 39-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. Claims 22-24, 28-29, 31-37 and 39-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 22 and 44-45, the notation "n" is vague because it has two sets of definition. See page 6 (line 6 and line 15), page 22 and page 28 in the amendment filed 11/08/2007.

In claim 23, the n is at most 4, 6 or 8 is vague because the definition of the notation "n" in claim 22.

In claim 24, line 2, the "and/or" is vague.

In claims 44 and 45, the claim language "recurring units" is vague because it is not clear that the claimed polythiophene comprises at least two different recurring units of formula (I). See claim 31, there are two formulae with "and/or" option.

Claims 28-29, 32-37 and 39-43 are rejected because they are dependent claims.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 22-26, 28, 31 and 34-37 and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krishnamoorthy et al. (Synthetic Metals 124 (2001), pages 471-475).

The reference discloses a polymer based on a rigid cyanobiphenyl substituted 3,4-ethylenedioxythiophene used in industrial applications such as electrochromic materials and light emitting diodes (see abstract and section 1). The synthesis of poly 3,4-ethylenedioxythiophene is disclosed in section 3.1.

The product "P2" obtained from electropolymerization of monomer of formula 2 on page 472.

With respect to claims 22-26, 28, 31 and 34-36, the reference differs from the claims in that the claims exclude the reference compound having a hexylene group. The present formulae (I) or (I-a) has a space group containing 1-20 alkylene. However, it is known that the length of space group  $(CH_2)_6$  can be adjusted; therefore it would have been obvious to those skilled in the art to modify the starting material by adjusting the length of alkyl of cyanobiphenyl derivatives for the same electrochemical applications to arrive at the claimed invention.

With respect to claim 37 and 41, the present claim differs from the reference in that the reference does not specifically disclose the process for preparing conductive layers comprising the polythiophene of formula (IV), however, the reference polymer film comprising the present formula (IV) has conductivity. The studies of conductivity

are shown in Fig. 1A and 1B. Also, see section 3.4. Therefore, it would have been obvious to those skilled in the art to expect the reference polymer film having a characteristic of conductive layer.

***Allowable Subject Matter***

4. Claim 27 is allowed.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shean C. Wu whose telephone number is 571-272-1393. The examiner can normally be reached on 10:30 AM to 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Shean C Wu/  
Shean C Wu  
Primary Examiner  
Art Unit 1795

SCW